January 18, 2019

Central Coast Regional Water Quality Board,

Thank you for the opportunity to make public comment on the proposed Agriculture Order 4.0 regulations. As a genetics-based berry marketer founded, owned and operated by long-term residents and farmers of the Central Coast, we would first like to reiterate our strong support for both environmental protection and agricultural viability in this region. Our commitment to environmental stewardship has led Driscoll's to strongly support legislation like California's Sustainable Groundwater Management Act of 2014 and near-term water quality solutions such as the Salinas Basin Agriculture Stewardship Group which provides safe drinking water to impacted communities. We also have a long history of research collaboration on water quality improvements, including work with the University of California Cooperative Extension on their CropManage nitrogen management tool and the Ventura and Monterey County Resource Conservation Districts on erosion management practices, among others.

Driscoll's also believes in a vibrant agriculture sector in the Central Coast. The Central Coast's rich soils, ideal climate and innovative agricultural community makes it one of the best regions for fruit and vegetable production in the world. Collectively, we produce almost 90% of the United States' strawberries and over 70% of leafy greens. In Monterey County alone agriculture contributes over $8.1B to the economy and employs one in four workers (Monterey County Ag Commissioner, 2014).

We believe that our joint commitments to environmental stewardship and agricultural vitality does not need to be at odds here in the Central Coast. There is opportunity to make substantial, quantifiable improvements in water quality while allowing agriculture to continue to thrive. Below we outline a few key areas where we would welcome continued dialogue with the Staff and Board during the development of the Agriculture Order 4.0 regulations.

Multi-Year Specialty Crops

First, we'd like to highlight the unique lifecycle of raspberries and blackberries and the limited research available for these species. Raspberries and blackberries are part of the Rose family, with perennial root systems and woody canes (Sønsteby and Heide, 2008). Raspberries and blackberries are semi-permanent crops that stay in the field between two and five years and alternate between fruiting and vegetative cycles. The nitrogen applied in one year stays in the field in the form of woody cane until the end of the floricane fruiting cycle (Hart et al., 2006). At this point, aerial biomass is removed but the root system and woody crown remain in place. Any consideration of numeric limits for these species should account for the fact that nitrogen is sequestered in the cane, roots and crown for multiple years. Annual applied versus removed calculations must be adjusted for this sequestered nitrogen, in alignment with the recommended 'nitrogen removed' definition used both within the Conclusions of the Agriculture Expert Panel (2014) and the Eastern San Joaquin Order.

Nitrogen uptake of blackberry and raspberry plants also varies with the size of the plant, variety, yield and field conditions. To date, there has been very little research on nitrogen uptake of these species, with most research taking place in substantially different growing regions with different plant lifecycles, cultivars and climate variations, all factors that significantly influence nutrient uptake (Hart et al., 2006; Strik and Bryla, 2015). Driscoll's is very open to working with reputable third party organizations to conduct the necessary nitrogen uptake research for these species in the context of the Central Coast. We've previously collaborated with University of California Cooperative Extension and the Ventura

Resource Conservation District on preliminary research on nutrient issues but further research is needed. We would welcome the opportunity to reengage with the University of California Cooperative Extension or similar organizations and urge the Board and Staff to identify how this type of pressing scientific research can be funded and conducted in a way that creates credibility among all stakeholders while protecting intellectual property rights. Driscoll's stands ready to collaborate on such efforts.

Plastics

Second, we would like to encourage the Board to consider the potential unintended consequences of singling out plastics in erosion regulations. Agricultural plastics provide substantial benefits to production by reducing water use and food waste and improving harvestable yields. It is estimated that without plastic mulch, farmers would need 20% more strawberry acreage to produce the same fruit volume, holding all nutrient inputs constant (Kivijärvi, 2002). Similar yield gains of 30% or more have been seen in hooped raspberry production (UC ANR, 2009). This means that without plastic, there would need to be 20%-30% more acreage applying pesticides and nutrients in order to get the same amount of fruit to market. Sustainable intensification, or the judicious use of best practices to improve yield per unit input, is widely regarded as a key component of sustainable agriculture systems (Tilman et al., 2002). Given plastic's role in promoting the most efficient use of resources, we would encourage the Board to fully consider the potential unintended consequences of targeting plastic specifically in regulations.

We support the Staff's desire to slow erosion impacts from agriculture. However, based on conversations with others in the industry, we are concerned that if plastics are singled out from other production systems, crop rotation will effectively stop in the Central Coast. Erosion management requires substantial infrastructure and investment. If Agriculture Order 4.0 regulations required plastic-only best management practice (BMP) adoption, vegetable growers will likely be unwilling to sub-lease to berry producers because of the infrastructure requirements and the increased food safety risks associated with vegetation introduced as a part of erosion BMPs. Crop rotation is widely recognized as an environmental best management practice as it reduces pest pressures and improves nutrient efficiency, among other benefits (Subbarao et al., 2007; Tilman et al., 2002). We fear that by regulating plastics separately from other agricultural systems, the proposed regulations may inadvertently increase pesticide use through dis-incentivizing crop rotation. We urge the Board to consider a slope-based erosion regulation that requires erosion management plans for ranches above a certain slope. Such an approach would target the areas contributing most to sediment loading while allowing for the continued beneficial crop rotation on much of the region's lands.

To conclude, we want to reiterate our commitment to environmental stewardship and agricultural viability in the Central Coast. We would welcome the opportunity to engage with Staff further on pursuing critical research on nitrogen uptake for cane berries and the erosion management alternatives proposed here. We thank you for your service to our community and the environment,

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Note: Citations available upon request